

Test Report

Test

Title : Testing of Sanitary Tapware

Method : BS EN 1286: 1999 & BS EN 1982: 2008

Report No. : [REDACTED]

Completion : [REDACTED]

Applicant (Information below provided by client)

Name : [REDACTED]

Address : [REDACTED]

Sample (Information below provided by client)

Brand : [REDACTED]

Model : [REDACTED]

Body marking : [REDACTED]

Manufacturer : [REDACTED]

Origin : [REDACTED]

Description : ¾" Single lever kitchen mixer supplied with

1) 1 nos. of flexible hose claimed to be WRAS Approved Product by UK's under ref. no. 1710803 (refer to Appendix A)

2) 1 nos. of flexible hose claimed to be WRAS Approved Product by UK's under ref. no. 1506306 (refer to Appendix B)

Approved Signatory

Signature : [REDACTED]

Name (title) : [REDACTED]

Date : [REDACTED]

Summary

Test	Remark
1 Dimensions	C
2.1 Leaktightness of the obturator and of the tap upstream of the obturator(s)	C
2.2 Leaktightness of the obturator: cross flow between hot water and cold water	C
2.3 Leaktightness of the tap downstream of the obturator(s)	C
3 Determination of flow rate	N
4.1 Chemical composition of metal component - Body	C
5.1 Metal extraction from Valve Cartridge (no adverse physical effect on or hazard to human beings)	C
5.2 Metal extraction from Pull-out Spray (no adverse physical effect on or hazard to human beings)	C
Note : 1) The Spout internal water passage does not contact with water. The plastic hose connects the valve cartridge and water outlet directly. 2) Both flexible hoses (WRAS: 1710803 and WRAS 1506306) serves as interconnecting function, forming an integral part of the mixer.	

Results (apply only to samples tested)

1 Dimensions

BS EN 1286:1999 Cl. 8

ID	Variable	Unit	Measured	Required	Remark
1	Nominal size	in	¾	¾	C
	Vertical distance from lowest point of the outlet orifice to the mounting surface	mm	284.0 ✓	≥ 25	C ✓
Overall result					C

2.1 Leaktightness of the obturator and of the tap upstream of the obturator(s)

BS EN 1286:1999 Cl. 9.3

ID	Variable	Unit	Measured	Required	Remark
1	Static pressure	bar	16 ✓	16 ± 0.5	C ✓
	Duration	s	60 ✓	60 ± 5	C ✓
	Leakage	---	No ✓	No	C ✓
Overall result					C ✓

2.2 Leaktightness of the obturator: cross flow between hot water and cold water

BS EN 1286:1999 Cl. 9.4

ID	Variable	Unit	Measured	Required	Remark
Hot to cold	Static pressure	bar	4 ✓	4 ± 0.2	C
	Duration	s	60 ✓	60 ± 5	C
	Leakage or seepage	---	No ✓	No	C
Cold to hot	Static pressure	bar	4 ✓	4 ± 0.2	C
	Duration	s	60 ✓	60 ± 5	C
	Leakage or seepage	---	No ✓	No	C
Overall result					C /

2.3 Leaktightness of the tap downstream of the obturator(s)

BS EN 1286:1999 Cl. 9.5

ID	Variable	Unit	Measured	Required	Remark
High pressure	Static pressure	bar	4 ✓	4 ± 0.2	C
	Duration	s	60 ✓	60 ± 5	C
	Leakage or seepage	---	No ✓	No	C
Low pressure	Static pressure	bar	0.2 ✓	0.2 ± 0.02	C
	Duration	s	60 ✓	60 ± 5	C
	Leakage or seepage	---	No ✓	No	C
Overall result					C

3 Determination of flow rate

BS EN 1286:1999 Cl. 10.5

ID	Variable	Unit	Measured	Required	Remark
1	Temperature	°C	Full cold	N	N
	Dynamic pressure	bar	0.1 ✓	0.1 ± 0.005	C
	Flow rate (main outlet mode)	l/s	0.025	N	N
2	Temperature	°C	34	N	N
	Dynamic pressure	bar	0.1 ✓	0.1 ± 0.005	C
	Flow rate (main outlet mode)	l/s	0.028	N	N
3	Temperature	°C	38	N	N
	Dynamic pressure	bar	0.1 ✓	0.1 ± 0.005	C
	Flow rate (main outlet mode)	l/s	0.029	N	N
4	Temperature	°C	42	N	N
	Dynamic pressure	bar	0.1 ✓	0.1 ± 0.005	C
	Flow rate (main outlet mode)	l/s	0.029	N	N
5	Temperature	°C	Full hot	N	N
	Dynamic pressure	bar	0.1 ✓	0.1 ± 0.005	C
	Flow rate (main outlet mode)	l/s	0.025	N	N
Overall result					N

Note:

- WSD has waived the minimum flow rate requirement per WSD Circular Letter No. 1/2010.

4.1 Chemical composition of metal component - Body

Designation: BS EN 1982:2008: CC754S

ID	Variable	Unit	Measured	Required	Remark
Body	Copper	%	60.7 ✓	58.0 - 63.0	C ✓
	Zinc	%	37.8 ✓	R	C ✓
	Lead	%	1.3 ✓	0.5 - 2.5	C ✓
	Tin	%	<0.025 ✓	max. 1.0	C ✓
	Nickel	%	0.1 ✓	max. 1.0	C ✓
	Iron	%	0.1 ✓	max. 0.7	C ✓
	Aluminium	%	<0.005 ✓	max. 0.8	C ✓
	Manganese	%	<0.015 ✓	max. 0.5	C ✓
	Phosphorus	%	<0.007 ✓	max. 0.02	C ✓
	Silicon	%	<0.025 ✓	max. 0.05	C ✓
Overall result					C ✓

5.1 Metal extraction from Valve Cartridge (no adverse physical effect on or hazard to human beings)

In-house method

ID	Variable	Unit	Measured	Required	Remark
Valve Cartridge	Arsenic	µg/l	< 1.5 ✓	≤ 10	C ✓
	Lead	µg/l	< 2 ✓	≤ 10	C ✓
	Cadmium	µg/l	< 1 ✓	≤ 3	C ✓
	Chromium	µg/l	< 2 ✓	≤ 50	C ✓
	Selenium	µg/l	< 2 ✓	≤ 40	C ✓
	Nickel	µg/l	< 2 ✓	≤ 70	C ✓
Overall result					C ✓

5.2 Metal extraction from Pull-out Spray (no adverse physical effect on or hazard to human beings)

In-house method

ID	Variable	Unit	Measured	Required	Remark
Pull-out Spray	Arsenic	µg/l	< 1.5 ✓	≤ 10	C ✓
	Lead	µg/l	< 2 ✓	≤ 10	C ✓
	Cadmium	µg/l	< 1 ✓	≤ 3	C ✓
	Chromium	µg/l	< 2 ✓	≤ 50	C ✓
	Selenium	µg/l	< 2 ✓	≤ 40	C ✓
	Nickel	µg/l	< 2 ✓	≤ 70	C ✓
Overall result					C ✓

Notes:

- Metals are extracted by immersing the component in boiling deionized water for five minutes.
- Requirements are based on WHO Guidelines for Drinking Water Quality Fourth Edition: 2011.

Remark :

- No electroplating materials were observed on the internal water passage surfaces of the sample under a non-destructive and unaided visual inspection.

Figure 1 - Sample

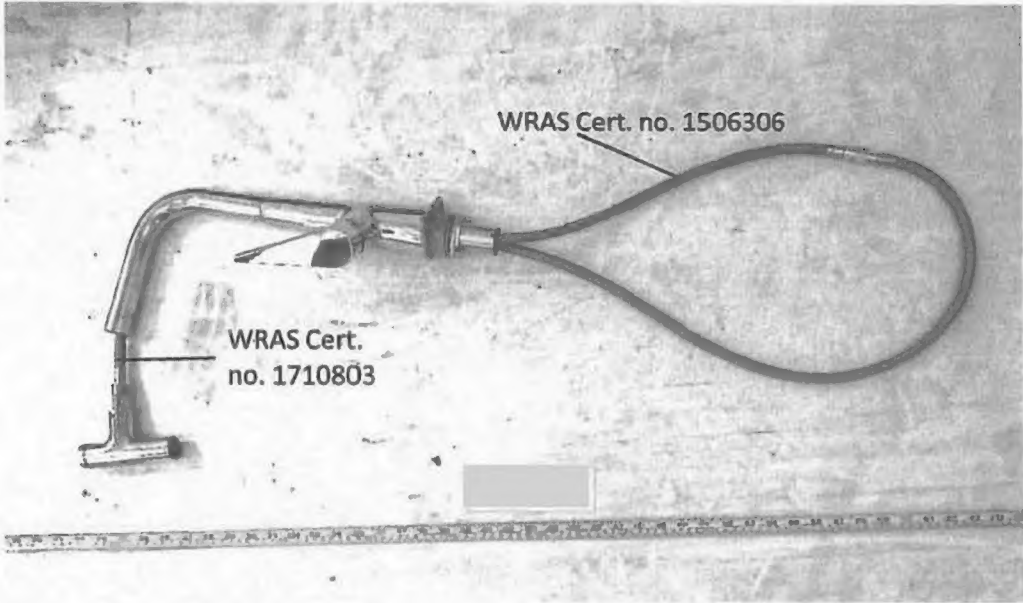


Figure 2 - Seat bore

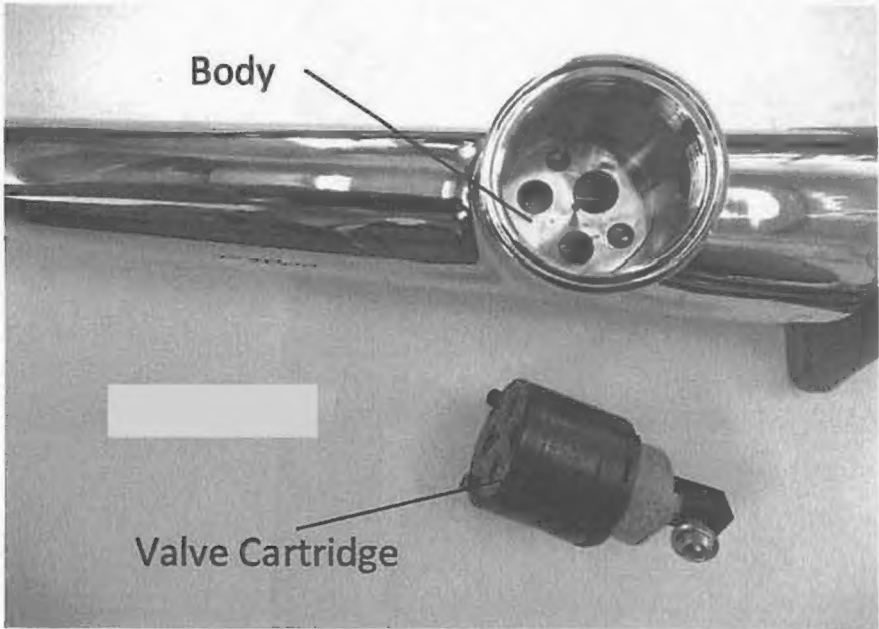


Figure 3 - Surface of internal water passage

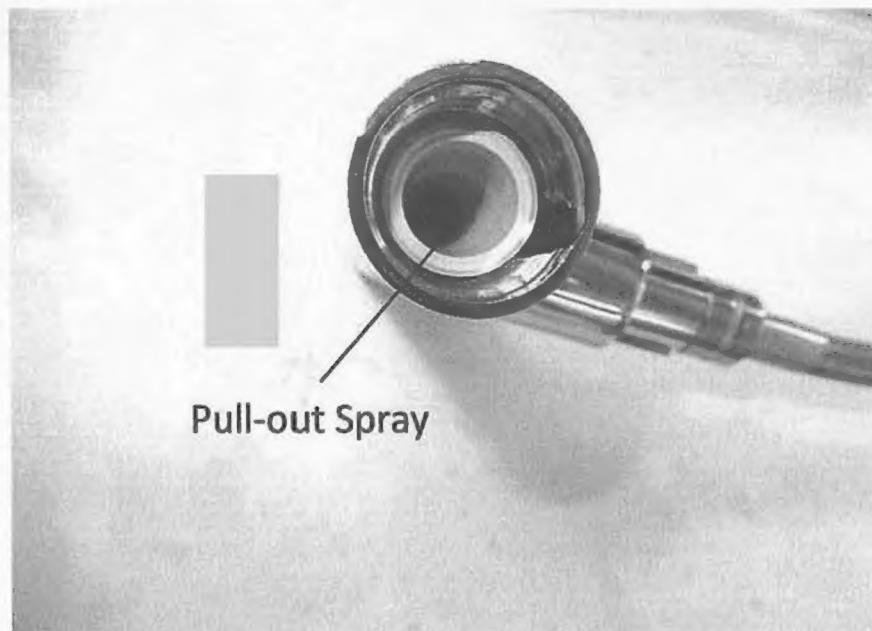
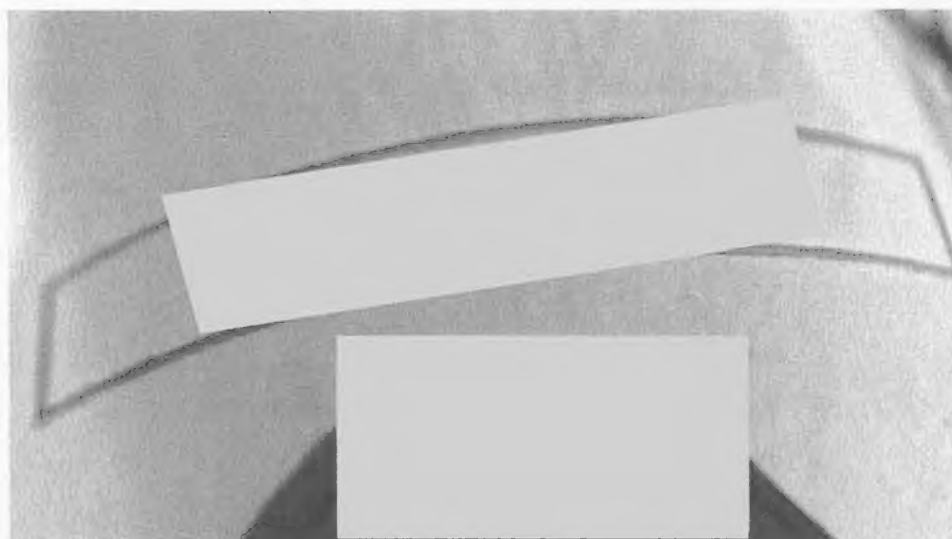


Figure 4 - Body marking



General Note(s)

Definitions:

C - conformance

N - no requirement

NC - non-conformance

R - remainder

Organizations:

HKAS - Hong Kong Accreditation Service

HOKLAS - Hong Kong Laboratory Accreditation Scheme

WSD - Water Supplies Department (of Hong Kong)

WHO - World Health Organization

- End of report -

Appendix A



see details www

This certifies that

[Redacted]

*has had the undermentioned product examined, tested and found,
when correctly installed, to comply with the requirements of the
United Kingdom Water Supply (Water Fittings) Regulations and
Scottish Water Byelaws.*

[Redacted]

LINED FLEXIBLE HOSE ASSEMBLIES

*The certificate by itself is not evidence of a valid WRAS Approval. Confirmation of the current
status of an approval must be obtained from the WRAS Directory (www.wras.co.uk/directory)*

The product so mentioned will be valid until the end of:

October 2022

Certificate No.

[Redacted]

[Redacted]

Secretary

[Redacted]

Chairman, Product Assessment Group

Appendix B



This certifies that

[Redacted]

*has had the undermentioned product examined, tested and found,
when correctly installed, to comply with the requirements of the
United Kingdom Water Supply (Water Fittings) Regulations and
Scottish Water Byelaws.*

[Redacted] **FLEXIBLE HOSE ASSEMBLIES**

*The certificate by itself is not evidence of a valid WRAS Approval. Confirmation of the current
status of an approval must be obtained from the WRAS Directory (www.wras.co.uk/directory)*

The product so mentioned will be valid until the end of:

June 2020

[Redacted]

Certificate No

[Redacted]

Secretary

[Redacted]

Chairman, Product Assessment Group



CERTIFICATION MARK

This certifies that

[Redacted]

*has had the undermentioned product examined, tested and found,
when correctly installed, to comply with the requirements of the
United Kingdom Water Supply (Water Fittings) Regulations and
Scottish Water Byelaws.*

[Redacted]
[Redacted] **LINED FLEXIBLE HOSE ASSEMBLIES**

*The certificate by itself is not evidence of a valid WRAS Approval. Confirmation of the current
status of an approval must be obtained from the WRAS Directory (www.wras.co.uk/directory)*

The product so mentioned will be valid until the end of:

October 2022

[Redacted]

Certificate No.

[Redacted]

Secretary

[Redacted]

Chairman, Product Assessment Group



Water Regulations Advisory Scheme Ltd.
Unit 13, Willow Road,
Pen y Fan Industrial Estate,
Crumlin,
Gwent,
NP11 4EG

Approval Number:

Dear Sir/Madam

1. Production samples of the products described in Approval Information ("Products") have been subjected to relevant mechanical and water quality tests contained in the "Regulators' Specifications" for the purposes of your application for WRAS Approval.
2. After considering the test reports and examining the Product/s, The Water Regulations Advisory Scheme Ltd. ("WRAS Ltd" / "WRAS") finds that their use, when correctly installed (see paragraph 3) complies with the requirements of The Water Supply (Water Fittings) Regulations 1999, The Water Supply (Water Fittings) (Scotland) Byelaws 2014, The Water Supply (Water Fittings) Regulations (Northern Ireland) 2009 and all other applicable WRAS requirements from time to time.

The non-metallic materials of construction, in contact with the water, are suitable for contact with wholesome water intended for domestic purposes having met the requirements of BS 6920-1: 2000 and/or 2014 'Suitability of non-metallic products for use in contact with water intended for human consumption with regard to their effect on the quality of the water.

WRAS Approvals are granted subject to and in accordance with the Standard Terms and Conditions of WRAS Fittings Approval as amended from time to time ("**Standard Terms of Approval**"). You have confirmed your acceptance of the Standard Terms of Approval by submitting your application for WRAS Approval. A copy of the current Standard Terms of Approval are attached to this letter as Appendix B and are also available from the WRAS website: www.wras.co.uk.

Terms defined in the Standard Terms of Approval shall have the same meaning in this letter unless the context otherwise requires.

3. Installation Requirements & Notes (IRNs) are set out in Appendix A. WRAS Product Approvals may include one or more IRNs, which must be followed by the installer to ensure that the product is installed correctly to comply with The Regulations and Byelaws. Since the incorrect installation of products could result in contravention of the Regulations or Byelaws requirements, **the attention of your customers should be drawn to any IRNs.**
4. Please note that the use of the Products described in any particular area of supply is at the discretion of the Water Undertaker in that area.
5. Approval Holders may quote in their sales literature that **WRAS finds that the use of these products, when correctly installed, will not contravene the requirements of** The Water Supply (Water Fittings) Regulations 1999, The Water Supply (Water Fittings) (Scotland) Byelaws 2014, The Water Supply (Water Fittings) Regulations (Northern Ireland) 2009.
6. The "WRAS Approved Product" logos are certification marks registered under the Trade Marks Acts 1994 ("**Certification Marks**"). Approval Holders may use the Certification Marks in accordance with the Standard Terms of Approval.
7. Please verify the details of your Product as set out in the approval information and advise us of any discrepancies by no later than **19th October 2017**

Yours Faithfully

Secretary, Product Approval Group

APPROVAL INFORMATION

Validity dates: This is re-approval of _____ which is valid for fittings (as listed below in model) manufactured AND installed between September 2012 & September 2017

Approval _____ is valid for fittings (as listed below in model) manufactured AND installed between October 2017 & October 2022

Section Number: **1863**

Section title: **TUBES - ELASTOMERIC.**

Installation requirement notes: **R001, R008**
(IRN's are set out in Appendix A)

Product description: Range of stainless steel or nylon braided, thermoplastic silicone rubber (TPSiV) lined flexible hoses with a variety of end connectors.
Maximum working pressure 10.0 bar. Maximum operating temperature 90°C.

Size: DN6 hoses – available with end connections:
M8, M10, M11, M12, M14 & M15 male thread;
T8 (mm);
3/8", 1/2" & 3/4" captive nut (BSP);
3/8" & 1/2" BSP M;
M14 & M15 threaded captive nut;
1/2" conical captive nut;
NPB Ø15;
15mm compression;
3/8" & 1/2" captive nut (with curved elbow).

DN8 hoses – available with end connections:
M10, M11, M12, M14 & M15 male thread;
T8 (mm);
3/8", 1/2" & 3/4" captive nut (BSP);
3/8" & 1/2" BSP M;
M14 & M15 threaded captive nut;
1/2" conical captive nut;
NPB Ø15;
15mm compression;
3/8" & 1/2" captive nut (with curved elbow).

DN10 hoses – available with end connections:
M12 male thread;
3/8", 1/2" & 3/4" captive nut (BSP);
3/8" & 1/2" BSP M;
1/2" conical captive nut;
NPB Ø15;
15mm compression;
3/8" & 1/2" captive nut (with curved elbow).

DN13 hoses – available with end connections:
1/2" & 3/4" captive nut (BSP);
1/2" BSP (M)
& 1/2" captive nut (with curved elbow).

Identification Marking: _____, WRAS, year of manufacture (YY) & DN size

Manufacturer: _____

Approval Number:

19th September 2017

Model:

APPENDIX A

INSTALLATION REQUIREMENTS & NOTES

You are advised to draw customers' attention to the installation requirements and notes set out below which must be followed to ensure that the fittings described above are installed in accordance with the requirements of the Regulations and Byelaws:

IRN R001

See text of entry for Installation Requirements or Notes.

IRN R008

This fitting is to be installed where light is excluded.



CERTIFICATION MARK

This certifies that

*has had the undermentioned product examined, tested and found,
when correctly installed, to comply with the requirements of the
United Kingdom Water Supply (Water Fittings) Regulations and
Scottish Water Byelaws.*

_____ **FLEXIBLE HOSE ASSEMBLIES**

*The certificate by itself is not evidence of a valid WRAS Approval. Confirmation of the current
status of an approval must be obtained from the WRAS Directory (www.wras.co.uk/directory)*

The product so mentioned will be valid until the end of:

June 2020

Certificate No.

Secretary

Chairman, Product Assessment Group



Water Regulations Advisory Scheme Ltd.
Unit 13, Willow Road,
Pen y Fan Industrial Estate,
Crumlin,
Gwent,
NP11 4EG

Approval Number: [REDACTED]

Dear Sir/Madam

1. Production samples of the products described in Approval Information ("Products") have been subjected to relevant mechanical and water quality tests contained in the "Regulators' Specifications" for the purposes of your application for WRAS Approval.
2. After considering the test reports and examining the Product/s, The Water Regulations Advisory Scheme Ltd. ("WRAS Ltd" / "WRAS") finds that their use, when correctly installed (see paragraph 3) complies with the requirements of The Water Supply (Water Fittings) Regulations 1999, The Water Supply (Water Fittings) (Scotland) Byelaws 2014, The Water Supply (Water Fittings) Regulations (Northern Ireland) 2009 and all other applicable WRAS requirements from time to time.

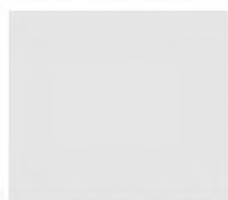
The non-metallic materials of construction, in contact with the water, are suitable for contact with wholesome water intended for domestic purposes having met the requirements of BS 6920-1: 2000 and/or 2014 'Suitability of non-metallic products for use in contact with water intended for human consumption with regard to their effect on the quality of the water.

WRAS Approvals are granted subject to and in accordance with the Standard Terms and Conditions of WRAS Fittings Approval as amended from time to time ("**Standard Terms of Approval**"). You have confirmed your acceptance of the Standard Terms of Approval by submitting your application for WRAS Approval. A copy of the current Standard Terms of Approval are attached to this letter as Appendix B and are also available from the WRAS website: www.wras.co.uk.

Terms defined in the Standard Terms of Approval shall have the same meaning in this letter unless the context otherwise requires.

3. Installation Requirements & Notes (IRNs) are set out in Appendix A. WRAS Product Approvals may include one or more IRNs, which must be followed by the installer to ensure that the product is installed correctly to comply with The Regulations and Byelaws. Since the incorrect installation of products could result in contravention of the Regulations or Byelaws requirements, **the attention of your customers should be drawn to any IRNs.**
4. Please note that the use of the Products described in any particular area of supply is at the discretion of the Water Undertaker in that area.
5. Approval Holders may quote in their sales literature that WRAS **finds that the use of these products, when correctly installed, will not contravene the requirements of** The Water Supply (Water Fittings) Regulations 1999, The Water Supply (Water Fittings) (Scotland) Byelaws 2014, The Water Supply (Water Fittings) Regulations (Northern Ireland) 2009.
6. The "WRAS Approved Product" logos are certification marks registered under the Trade Marks Acts 1994 ("**Certification Marks**"). Approval Holders may use the Certification Marks in accordance with the Standard Terms of Approval.
7. Please verify the details of your Product as set out in the approval information and advise us of any discrepancies by no later than **17th April 2016**

Yours Faithfully



Secretary, Product Approval Group

APPROVAL INFORMATION

Validity dates: This approval is valid for fittings (as listed below in model) manufactured AND installed between June 2015 & June 2020

Section Number: **1860**

Section title: **TUBES - PLASTIC HOSES.**

Installation requirement notes: **R001, R008**
(IRN's are set out in Appendix A)

Product description: Range of stainless steel braided PE-X lined flexible hose assemblies with various end connections with EPDM rubber washers and/or NBR rubber 'O'-rings.
Maximum working pressure 10.0 bar. Maximum operating temperature 70°C.

Size: DN6, DN8, DN10 & DN13 available with the following end connections: 15mm compression, 3/8", 1/2" & 3/4" female elbow, 7/16", 9/16", 3/8", 1/2" & 3/4" female straight, 3/8", 1/2" & 3/4" male straight, M8, M9, M10 & M12 male, D10 & D12 tube, D10 & D12 plug in.

Identification Marking: [REDACTED], size, temperature, WRAS and date of manufacture YYMMDD on crimped connector. (Date of manufacture changed to YYYY from July 2016)

Manufacturer: [REDACTED]

Factor: [REDACTED]

Model: [REDACTED]

APPENDIX A

INSTALLATION REQUIREMENTS & NOTES

You are advised to draw customers' attention to the installation requirements and notes set out below which must be followed to ensure that the fittings described above are installed in accordance with the requirements of the Regulations and Byelaws:

IRN R001

See text of entry for Installation Requirements or Notes.

IRN R008

This fitting is to be installed where light is excluded.

APPENDIX B - Standard Terms of Approval

STANDARD TERMS & CONDITIONS OF WRAS PRODUCT APPROVAL

The Water Regulations Advisory Scheme (WRAS) administers the WRAS Product Approval and Material Approval Scheme on behalf of the UK Water Supply Industry.

WRAS Approval of products is granted subject to the following standard conditions, which holders of approvals accept on signing the WRAS Approval application form (Form F2).

1. Introduction

- 1.1. The WRAS Approval Scheme and the WRAS Product and Materials Directory are owned and operated by the Water Regulations Advisory Scheme Ltd ("WRAS Ltd" or "WRAS").
- 1.2. WRAS Approvals are granted by the WRAS Product Assessment Group ("PAG"). Members of the PAG are suitably experienced representatives of the UK Water Supply Industry appointed by the WRAS Technical Committee.
- 1.3. In these Standard Terms of Approval, the following definitions shall apply:

"Agent" means any third party agent nominated by the Applicant for the purposes of the Application and whose details are set out in section 4 of the Application Form;

"Applicant" means any person, company or other organisation / entity that applies for WRAS Approval in respect of a Product;

"Application" means an application for WRAS Approval;

"Application Form" means the F2 application form to be used when applying for WRAS Approval and which can be found on the WRAS website www.wras.co.uk;

"Approval" / "WRAS Approval" means approval granted by WRAS on behalf of UK Water Suppliers once WRAS is satisfied that the Product complies with the requirements of the Water Supply (Water Fittings) Regulations 1999 and BS 6920 and any other applicable requirements from time to time;

"Approval Holder" means the holder of an existing WRAS Approval, which includes holders of both Primary Approvals and Secondary Approvals;

"Approval Period" has the meaning set out in clause 3.5;

"Approved Product" means any water fitting, plumbing product, material or component which is the subject of an existing WRAS Approval;

"Approval Letter" means the letter from WRAS to the Applicant confirming the grant of WRAS Approval in respect of a Product;

"Approval Scheme Installation Requirements and Notes" means any installation requirements and notes issued by WRAS as part of a WRAS Approval;

"Certification Mark" has the meaning set out in clause 20.1;

"Committee" means the WRAS Technical Committee;

"Directory" means the WRAS Product & Material Directory;

"Event Outside Our Control" means any act or event beyond WRAS's reasonable control, including without limitation strikes, lock-outs or other industrial action by third parties, civil commotion, riot, invasion, terrorist attack or threat of terrorist attack, war (whether declared or not) or threat or preparation for war, fire, explosion, storm, flood, earthquake, subsidence, epidemic or other natural disaster, or failure of public or private telecommunications networks [or impossibility of the use of railways, shipping, aircraft, motor transport or other means of public or private transport];

"Factor" a factor is generally an organisation that did not manufacture the Product, typically being a retailer, reseller or wholesaler;

"Primary Approval" means an Approval granted pursuant to the first Application for a Product and any subsequently renewals of that first Approval;

"Product" means any water fitting, plumbing product, material or component submitted to WRAS for WRAS Approval;

"Sample" samples of the Product to be sent to WRAS for evaluation as part of the Application;

"Scheme" means the Water Regulations Advisory Scheme;

"Secondary Approval" means an Approval granted pursuant to a second Application for a Product; a Secondary Approval relies on the existence of a Primary Approval and is typically used where the Product has been re-branded but maintains the same mechanical specifications as the Product submitted for Primary Approval and therefore does not require any further mechanical or materials testing;

"Standard Terms of Approval" these standard terms and conditions of WRAS Approval as amended from time to time in accordance with clause 24.2;

"Test Facility" means any WRAS suitably accredited test laboratory;

"WRAS Guidance" means the WRAS Product Approval Guidance available on the WRAS website www.wras.co.uk